

# **PLANNING A TRIP TO SIX FLAGS GREAT AMERICA**

## **I. PRE-TRIP PREPARATION AND SAFETY PRECAUTIONS**

1. Be sure permission slips indicate any special medical needs to allergies such a bee stings.
2. Instruct students to wear secure shoes or sneakers and bring appropriate clothing and sun blocks. This can mean a windbreaker for a chancy day or a change of clothing if the intend to go on water rides.
3. Assign students to lab groups of four to six, all members must be accounted for at all times. In a larger group, no one will feel pressured to ride. Anyone wanting to ride will probably have a partner and non-riders will have people to ask about sensations. Less equipment will be needed and enough people will be available to get the job done effectively.
4. Remind students to follow all safety requirements,, such as seat belts and harnesses when they get on a ride. The students activities at the Park must in no way interfere with the operation of any ride or park employee's job. No restricted areas of safety zones are to be entered to obtain data. All data can be obtained from general public areas.

## **II. ORGANIZATIONAL SUGGESTIONS**

1. Remind students that they are not required to go on any rides. They can do all of the workbook assignments and learn a great deal by watching and talking to people who do ride.
2. Tell students exactly where and when to meet the bus and arrange times and places during the day where students can find you if they wish. If you choose to have students check in with you personally, set aside a large block of time so that students are not caught waiting in line for a ride.
3. Distribute tickets to students as they get off the bus so that entry to the park is efficient.
4. Suggest that students plan to use less dramatic rides for a good portion of their required work. (Time in line is proportional to the popularity of a ride).

## **III. USING THE HANDOUT**

1. The intent of the workbook is to show students that "doing physical science at the park adds an extra dimension; going on rides become more interesting and more exciting".
2. A day or so before your trip, make up some data and go through one ride from the workbook in class. Students will have a sense of how to use the pages most efficiently and familiarity will make the exercises seem less intimidating..

## **PLANNING A TRIP-Cont'd**

3. The **ON THE BUS** pages are important as they set the time for the day and also teach or reinforce the concept of force = factors (The advantage of working in force-factors is that all students, regardless of mass, end up with roughly the same answers. This makes their work easier to check and gives them a way to compare experiences.)
4. Completing the entire exercises handout would be overwhelming. Choose a series of concepts and a minimum number (3 or 4) rides you want students to investigate.
5. Since certain rides illustrate almost exactly the same concepts, only one needs to be used.
6. Another option is to allow students to choose a ride not covered and develop materials which show how that ride illustrates physics concepts.
7. When checking student answers, please remember that human reaction times vary and the speed of a ride depends on the temperature and time of day.
8. Many teachers have found it useful to have the workbook due at the end of the day. This insures that enough calculations are done at the park for the students to connect calculated results with the rides they have just experienced.

## **IV. EQUIPMENT NEEDED AT THE PARK**

1. **STOPWATCH.** Many inexpensive ones are available and often at least one student in each group has a watch with stopwatch mode. Accuracy of .1 seconds is sufficient.
2. **FORCE METER.** Inexpensive commercial ones are available. They can also be made from a plastic tube or a clear plastic tennis ball can using appropriate springs or rubber bands and fishing weights. The 2 oz. weights work well with a relatively weak rubber band. (It is a nice opportunity to note that rubber bands aren't linear.) Have students tether these to a wrist or belt with a rubberband that will break if necessary but will hold enough to prevent accidental loss on a ride.
3. **PROTRACTOR** with a washer hanging on a string that passes through the vertex. A paper photocopy pasted to cardboard also works reasonably well. The commercial version, sometimes called an inclinometer, has the advantage of being protected from air currents.
4. **MEASURING STRING.** Use a film can for storage. Knot one end of a cord and secure it in a notch in the can. Measure out about 2 m of string making a knot or a mark with indelible marker every 10 cm. Wind the string around the can. Secure the free end in a second notch and snap on the top. A local film processor will often save film cans, if asked. Another option is having students pre-measure their paces.
5. **CALCULATOR AND PENCIL OR ERASABLE PEN.**
6. **ZIPLOCK PLASTIC BAG.** This is a necessity to keep your workbook dry and all other materials together.